

FORM PTO-1390  
(REV. 11-2000)

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

109846.998

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

09/937762

INTERNATIONAL APPLICATION NO.

PCT/GB00/01062

INTERNATIONAL FILING DATE

21 March 2000

PRIORITY DATE CLAIMED

01 April 1999

TITLE OF INVENTION

AGROCHEMICAL COMPOSITION

APPLICANT(S) FOR DO/EO/US

CUTLER et al.

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ has been communicated by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
  - a. ☐ is attached hereto.
  - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
  - b. ☐ have been communicated by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☐ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

## Items 11 to 20 below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A FIRST preliminary amendment.
14. ☐ A SECOND or SUBSEQUENT preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☒ Other items or information:

Postcard

U.S. APPLICATION NO. <b>09/937762</b>		INTERNATIONAL APPLICATION NO. PCT/GB00/01062		ATTORNEY'S DOCKET NUMBER 109846.998	
---------------------------------------	--	--	--	--	--

21. <input checked="" type="checkbox"/> The following fees are submitted: <b>BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):</b> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO. . . . . \$1000.00  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO . . . . . \$860.00  International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO . . . . . \$710.00  International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4) . . . . . \$690.00  International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4) . . . . . \$100.00 <b>ENTER APPROPRIATE BASIC FEE AMOUNT =</b>				<b>CALCULATIONS PTO USE ONLY</b>          	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).					
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$	
Total claims	- 20 =	0	x \$18.00	\$	
Independent claims	- 3 =	0	x \$80.00	\$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)				+ \$270.00 \$	
<b>TOTAL OF ABOVE CALCULATIONS =</b>				\$ 860.00	
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				+ \$	
<b>SUBTOTAL =</b>				\$ 860.00	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$	
<b>TOTAL NATIONAL FEE =</b>				\$ 860.00	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$	
<b>TOTAL FEES ENCLOSED =</b>				\$ 860.00	
				<b>Amount to be refunded:</b>	\$
				<b>charged:</b>	\$

a. ☐ A check in the amount of \$ \_\_\_\_\_ to cover the above fees is enclosed.

b. ☒ Please charge my Deposit Account No. 08-0219 in the amount of \$ 860.00 to cover the above fees.  
A duplicate copy of this sheet is enclosed.

c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any  
overpayment to Deposit Account No. 08-0219. A duplicate copy of this sheet is enclosed.

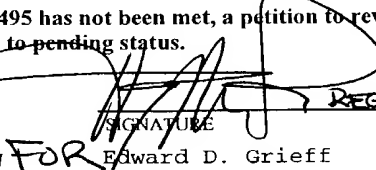
d. ☐ Fees are to be charged to a credit card. **WARNING:** Information on this form may become public. **Credit card  
information should not be included on this form.** Provide credit card information and authorization on PTO-2038.

**NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR  
1.137 (a) or (b)) must be filed and granted to restore the application to pending status.**

SEND ALL CORRESPONDENCE TO

Edward D. Grieff  
Hale and Dorr LLP  
1455 Pennsylvania Ave. NW  
Suite 1000  
Washington, DC 20004

SIGNATURE   
 FOR Edward D. Grieff  
 NAME  
 88,898  
 REGISTRATION NUMBER

REG. NO. 32,073

PTO/PCT Rec'd 29 JAN 2002

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Application of: **Cutler *et al.***

International Application No. **PCT/GB00/01062**

International Filing Date: **21 March 2000**

U.S. Application No.: **09/937,762**

U.S. Filing Date: **October 1, 2001**

For: **AGROCHEMICAL COMPOSITION**

Docket No: 109846.296

Assistant Commissioner of Patents  
Washington, DC 20231

**Preliminary Amendment**

Prior to consideration of the above application on the merits, please enter the following preliminary amendment without prejudice.

**IN THE CLAIMS**

Please amend claims 3, 11, 12, 14, 15 and 17 and add claim 18. A clean version of all the pending claims after entry of the present preliminary amendment is set forth in Appendix 1. A marked-up version of the amended claims, showing the changes made thereto, is set forth in Appendix 2.

**Remarks**

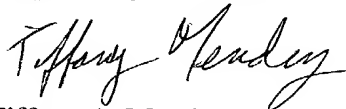
After entry of the preliminary amendment, claims 1-18 are pending in the present application.

Applicants have amended the claims by removing the multiple dependency. Applicants respectfully submit that no additional claim fees are required. No issues of new

Preliminary Amendment  
U.S. Application No. 09/937,762  
Page 2

matter should arise and entry of the preliminary amendment is respectfully requested.

Respectfully submitted,

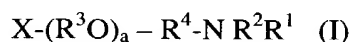


Tiffany A. Mendez  
Registration No. P-50,160

Date: January 8, 2001  
HALE and DORR LLP  
300 Park Avenue  
New York, New York 10022  
Phone: 212-937-7200  
Fax: 212-937-7300

**Appendix 1 - Clean Version of all Pending Claims**

1. (Amended) An agrochemical composition comprising an agrochemical active ingredient and an adjuvant of formula (I) or salts thereof



wherein  $R^1$  and  $R^2$  are independently hydrogen or a lower alkyl group or a group  $X'-(R^3O)_a-R^4$  – wherein  $R^3$  and  $R^4$  respectively may take any of the values of  $R^3$  and  $R^4$  as hereinafter defined and wherein  $X'$  is  $-OH$  or a lower alkoxy group containing from 1 to 6 carbon atoms and  $a$  is from 0 to 400

$R^3O$  is an ethoxy, propoxy or butoxy group or a random or block mixture thereof,

$R^4$  is a linear or branched chain alkylene bridging group containing from 1 to 4 carbon atoms,  $X$  is

(IA)  $-OH$  or a lower alkoxy group containing from 1 to 6 carbon atoms or  $X$  is

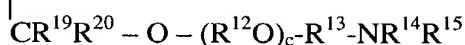
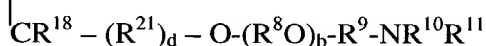
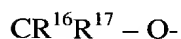
(IB) a group  $R^5R^6N-$  or  $R^5R^6N-R^7-$

wherein  $R^5$  or  $R^6$  are independently hydrogen or a lower alkyl group or a group  $X'-(R^3O)_a-R^4$  – as hereinbefore defined wherein  $X'$  is  $-OH$  or a lower alkoxy group containing from 1 to 6 carbon atoms,

and  $R^7$  is a linear or branched chain alkylene bridging group containing from 1 to 4 carbon atoms

or  $X$  is

(IC) a group



wherein  $R^{10}$ ,  $R^{11}$ ,  $R^{14}$  and  $R^{15}$  are independently hydrogen or a lower alkyl group or a group  $X'$  -  $(R^3O)_a-R^4$  - as hereinbefore defined wherein  $X'$  is  $-OH$  or a lower alkoxy group containing from 1 to 6 carbon atoms,

and  $R^8$  and  $R^{12}$  are independently alkyl groups containing from 1 to 4 carbon atoms and  $R^9$ ,  $R^{13}$  and  $R^{21}$  are independently a linear or branched chain alkylene bridging group containing from 1 to 6 carbon atoms,  $R^{16}$ ,  $R^{17}$ ,  $R^{18}$ ,  $R^{19}$  and  $R^{20}$  are independently hydrogen or a lower alkyl group and d is 0 or 1

and wherein a, is from 1 to 400 or if X is of formula IC, the sum of a, b and c is from 3 to 400.

2. A composition according to claim 1 wherein

X is  $-OH$  or a lower alkoxy group containing from 1 to 4 carbon atoms or

X is  $R^5R^6N-$  wherein  $R^5$  and  $R^6$  are hydrogen or a lower alkyl group containing from 1 to 4 carbon atoms or

X is a group of formula IC'

CH<sub>2</sub> - O-

|

CR<sup>18</sup> - (R<sup>21</sup>)<sub>d</sub> - O-(R<sup>8</sup>O)<sub>b</sub>-R<sup>9</sup>-NH<sub>2</sub>

|

C H<sub>2</sub> - O - (R<sup>12</sup>O)<sub>c</sub>-R<sup>13</sup>-NH<sub>2</sub>

wherein  $R^8O$  and  $R^{12}O$  are independently ethoxy, or propoxy or a random or block mixture thereof,  $R^9$  and  $R^{13}$  are independently a linear or branched chain alkylene bridging group containing 2 or 3 carbon atoms,  $R^{21}$  is a linear or branched chain alkylene bridging group containing from 1 to 3 carbon atoms,  $R^{18}$  is hydrogen or lower alkyl containing from 1 to 4 carbon atoms, d is 0 or 1,

$R^1$  and  $R^2$  are independently hydrogen or a lower alkyl group containing from 1 to 4 carbon atoms,  $R^3O$  is ethoxy, or propoxy or a random or block mixture thereof,  $R^4$  is a linear or branched chain alkylene bridging group containing 2 or 3 carbon atoms and a is from 1 to 400 or if X is of formula IC', the sum of a, b and c is from 3 to 400.

3. (Amended) A composition according to claim 1 wherein a is from 1 to 50 or if X is of formula IC or IC' respectively, the sum of a, b and c is from 3 to 90 and wherein in the group  $X'-(R^3O)_a-R^4$  - if present, a' is from 0 to 50.

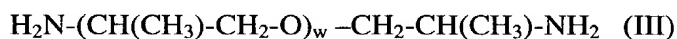
4. (Amended) A composition according to claim 1 wherein the adjuvant of formula (I) is an alkoxyated monoamine, having the formula II



wherein the average degree of ethoxylation (x) is from 0 to about 45 and the average degree of propoxylation (y) is from 0 to about 90 provided that x and y are not both 0 at the same time.

5. A composition according to claim 4 wherein the value of x is from 0 to about 20 and of y is from about 2 to about 30.

6. (Amended) A composition according to claim 1 wherein the compound of formula (I) is a diamine having a formula (III)



wherein w is an average of from about 1 to about 80.

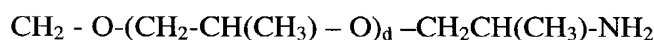
7. A composition according to claim 6 wherein w is an average of from about 2 to about 35.

8. A composition according to claim 1 wherein the compound of formula (I) is a diamine having a formula (IV)

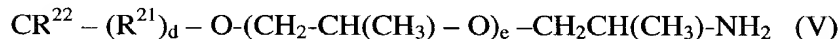


wherein the sum of  $r + t$  is an average of from 1 to 20 propoxy groups and  $s$  is an average of from 2 to 50 ethoxy units.

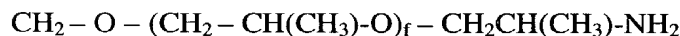
9. A composition according to claim 8 wherein the sum of  $r + t$  is from about 2 to about 15 and  $s$  is from about 3 to about 20.
10. A composition according to claim 1 wherein the compound of formula (I) is a propoxylated triamine having the formula (V)



|



|



wherein the sum of  $d + e + f$  is an average of from about 5 to 90,  $\text{R}^{22}$  is hydrogen or lower alkyl containing 1 to 4 carbon atoms,  $\text{R}^{21}$  is a linear or branched chain alkylene bridging group containing 1 to 3 carbon atoms and  $d$  is 0 or 1.

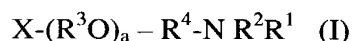
11. (Amended) A composition according to claim 1 wherein the proportion of adjuvant of formula (I) or salt thereof to the agrochemical active ingredient is from 1:20 to 3:1 by weight.
12. (Amended) A composition according to claim 1 wherein the adjuvant of formula (I) or salt thereof is used in combination with an alkylpolyglycoside surfactant.
13. A composition according to claim 12 wherein the ratio of the adjuvant of formula (I) to the alkylpolyglycoside surfactant is from 1:40 to 4:1.
14. (Amended) A composition according to claim 1 wherein the agrochemical active ingredient is a salt of glyphosate, a salt of fomesafen or a parquat salt.



15. (Amended) A composition according to claim 1 wherein the adjuvant of formula (I) is used in the form of a salt with glyphosate or a salt with an acidic surfactant.
16. A process of severely damaging or killing unwanted plants which process comprises applying to the plants or to the growth medium of the plants, a herbicidally effective amount of a composition as claimed in claim 14.
17. (Amended) A composition according to claim 1 which is an aqueous composition containing from 0.01% to 90% by weight of the agrochemical active ingredient.
18. (New) A composition according to claim 2 wherein a is from 1 to 50 or if X is of formula IC or IC' respectively, the sum of a, b and c is from 3 to 90 and wherein in the group X'-(R<sup>3</sup>O)<sub>a</sub>-R<sup>4</sup>- if present, a' is from 0 to 50.

**Appendix 2 – Marked-Up Version of Amended Claims**

1. (Amended) An agrochemical composition comprising an agrochemical active ingredient and  
an adjuvant of formula (I) [and] or salts thereof



wherein  $R^1$  and  $R^2$  are independently hydrogen or a lower alkyl group or a group  $X'-(R^3O)_a-R^4-$

wherein  $R^3$  and  $R^4$  respectively may take any of the values of  $R^3$  and  $R^4$  as hereinafter defined

and wherein  $X'$  is  $-OH$  or a lower alkoxy group containing from 1 to 6 carbon atoms and  $a'$  is from 0 to 400

$R^3O$  is an ethoxy, propoxy or butoxy group or a random or block mixture thereof,

$R^4$  is a linear or branched chain alkylene bridging group containing from 1 to 4 carbon atoms,  $X$  is

(IA)  $-OH$  or a lower alkoxy group containing from 1 to 6 carbon atoms or  $X$  is

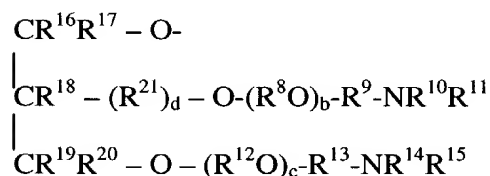
(IB) a group  $R^5R^6N-$  or  $R^5R^6N-R^7-$

wherein  $R^5$  or  $R^6$  are independently hydrogen or a lower alkyl group or a group  $X'-(R^3O)_a-R^4-$  as hereinbefore defined wherein  $X'$  is  $-OH$  or a lower alkoxy group containing from 1 to 6 carbon atoms,

and  $R^7$  is a linear or branched chain alkylene bridging group containing from 1 to 4 carbon atoms

or  $X$  is

(IC) a group



wherein  $R^{10}$ ,  $R^{11}$ ,  $R^{14}$  and  $R^{15}$  are independently hydrogen or a lower alkyl group or a group  $X'$  -  $(R^3O)_a-R^4$  - as hereinbefore defined wherein  $X'$  is -OH or a lower alkoxy group containing from 1 to 6 carbon atoms,

and  $R^8$  and  $R^{12}$  are independently alkyl groups containing from 1 to 4 carbon atoms and  $R^9$ ,  $R^{13}$  and  $R^{21}$  are independently a linear or branched chain alkylene bridging group containing from 1 to 6 carbon atoms,  $R^{16}$ ,  $R^{17}$ ,  $R^{18}$ ,  $R^{19}$  and  $R^{20}$  are independently hydrogen or a lower alkyl group and d is 0 or 1

and wherein a, is from 1 to 400 or if X is of formula IC, the sum of a, b and c is from 3 to 400.

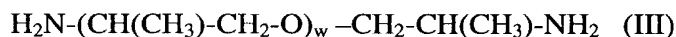
3. (Amended) A composition according to claim 1 [or 2] wherein a is from 1 to 50 or if X is of formula IC or IC' respectively, the sum of a, b and c is from 3 to 90 and wherein in the group  $X'$  -  $(R^3O)_a-R^4$  - if present, a' is from 0 to 50.

4. (Amended) A composition according to claim 1 wherein the adjuvant of formula (I) is an alkoxyated monoamine, having the formula II



wherein the average degree of ethoxylation (x) is from 0 to about 45 and the average degree of propoxylation (y) is from 0 to about 90 provided that x and y are not both 0 at the same time.

6. (Amended) A composition according to claim 1 wherein the compound of formula (I) is a diamine having a formula [(II)] (III)



wherein w is an average of from about 1 to about 80.

11. (Amended) A composition according to [any of the preceding claims] claim 1 wherein the proportion of adjuvant of formula (I) or salt thereof to the agrochemical active ingredient is from 1:20 to 3:1 by weight.

12. (Amended) A composition according to [any of the preceding claims] claim 1 wherein the adjuvant of formula (I) [in claim 1] or salt thereof is used in combination with an alkylpolyglycoside surfactant.
14. (Amended) A composition according to [any of the preceding claims] claim 1 wherein the agrochemical active ingredient is a salt of glyphosate, a salt of fomesafen or a parquat salt.
15. (Amended) A composition according to [any of claims 1 to 13] claim 1 wherein the adjuvant of formula (I) [in claim 1] is used in the form of a salt with glyphosate or a salt with an acidic surfactant.
17. (Amended) A composition according to [any of claims 1 to 15] claim 1 which is an aqueous composition containing from 0.01% to 90% by weight of the agrochemical active ingredient.
18. (New) A composition according to claim 2 wherein a is from 1 to 50 or if X is of formula IC or IC' respectively, the sum of a, b and c is from 3 to 90 and wherein in the group  $X^L-(R^3O)_a-$   $R^4$  – if present, a' is from 0 to 50.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re the Application of: **Cutler *et al.***

International Application No. **PCT/GB00/01062**

International Filing Date: **21 March 2000**

U.S. Application No.: **09/937,762**

U.S. Filing Date: **October 1, 2001**

For: **AGROCHEMICAL COMPOSITION**

Docket No: 109846.296

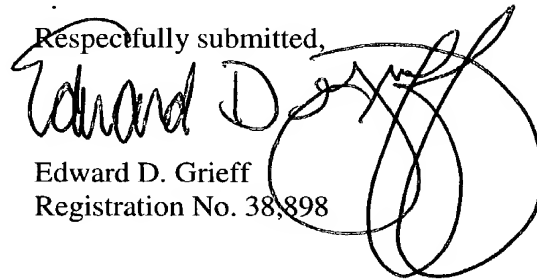
Assistant Commissioner of Patents  
Washington, DC 20231

**Associate Power of Attorney**

Please recognize the following person as an Associate Attorney in the above application:

Tiffany Mendez, Esq.  
Registration No. P-50,160  
Hale and Dorr LLP  
300 Park Avenue  
New York, NY 10022

Respectfully submitted,



Edward D. Grieff  
Registration No. 38,898

Date: January 7, 2002

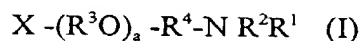
Hale and Dorr LLP  
1455 Pennsylvania Avenue, NW  
Washington, DC 20004  
Phone: 202-942-8400

AGROCHEMICAL COMPOSITION

This invention relates to an agrochemical composition and in particular to an agrochemical composition containing an activity-enhancing adjuvant.

5 An agrochemical is generally used with an adjuvant or combination of adjuvants to provide optimum biological activity. Much has been published on the selection of adjuvants to achieve particular effects with individual agrochemicals and classes of agrochemical. In general it has been assumed that activity-enhancement results from surfactant properties of the adjuvant and most such activity-enhancing adjuvants are surfactants in that they contain  
10 within the molecule both a hydrophobic portion and a lypophobic portion. We have now found that a class of alkoxyated amines provides excellent activity enhancement when used in an agrochemical formulation. Surprisingly certain members of the class have either no surfactant properties or low surfactant properties. Furthermore, unlike many surfactants used as conventional agrochemical adjuvants, the alkoxyated amines of the present  
15 invention generally exhibit an exceptionally low toxicological profile and in particular excellent ecotoxicological characteristics and provide compositions which are especially benign to the environment. It is exceptional to find adjuvants which combine a high level of activity enhancement with low toxicity.

According to the present invention there is provided an agrochemical composition  
20 comprising an agrochemical active ingredient and an adjuvant of formula (I) and salts thereof



25 wherein  $R^1$  and  $R^2$  are independently hydrogen or a lower alkyl group or a group  $X'-(R^3O)_a-R^4$  - wherein  $R^3$  and  $R^4$  respectively may take any of the values of  $R^3$  and  $R^4$  as hereinafter defined and wherein  $X'$  is -OH or a lower alkoxy group containing from 1 to 6 carbon atoms and  $a$  is from 0 to 400

$R^3O$  is an ethoxy, propoxy or butoxy group or a random or block mixture thereof,  
30  $R^4$  is a linear or branched chain alkylene bridging group containing from 1 to 4 carbon atoms,  $X$  is

(IA) -OH or a lower alkoxy group containing from 1 to 6 carbon atoms

or X is

(IB) a group  $R^5R^6N-$  or  $R^5R^6N-R^7-$

wherein  $R^5$  and  $R^6$  are independently hydrogen or a lower alkyl group or a group

$X'-(R^3O)_a-R^4-$  as hereinbefore defined wherein  $X'$  is  $-OH$  or a lower alkoxy group

5 containing from 1 to 6 carbon atoms,

and  $R^7$  is a linear or branched chain alkylene bridging group containing from 1 to 4 carbon atoms

or X is

(IC) a group

10

$CR^{16}R^{17}-O-$

|

$CR^{18}-(R^{21})_d-O-(R^8O)_b-R^9-NR^{10}R^{11}$

|

15

$CR^{19}R^{20}-O-(R^{12}O)_c-R^{13}-NR^{14}R^{15}$

wherein  $R^{10}$ ,  $R^{11}$ ,  $R^{14}$  and  $R^{15}$  are independently hydrogen or a lower alkyl group or a group

$X'-(R^3O)_a-R^4-$  as hereinbefore defined wherein  $X'$  is  $-OH$  or a lower alkoxy group

containing from 1 to 6 carbon atoms,

20 and  $R^8$  and  $R^{12}$  are independently alkyl groups containing from 1 to 4 carbon atoms and  $R^9$

and  $R^{13}$  and  $R^{21}$  are independently a linear or branched chain alkylene bridging group

containing from 1 to 6 carbon atoms,  $R^{16}$ ,  $R^{17}$ ,  $R^{18}$ ,  $R^{19}$  and  $R^{20}$  are independently hydrogen or a lower alkyl group and d is 0 or 1

and wherein a, is from 1 to 400 or if X is of formula IC, the sum of a, b and c is from 3 to

25

400.

A considerable number of salts of the compound of formula (I) suitable for use in agrochemical applications will occur to one skilled in the art. Examples of salts include phosphate, sulphate, carboxylate, acetate, formate and chloride although many other suitable salts will occur to one skilled in the art. Alternatively the compound of formula (I) may

30 form a salt with an acidic agrochemical such as glyphosate. Salts of the compound of formula (I) can also be prepared from acidic surfactants, for example optionally ethoxylated alkyl or alkylene ester derivatives of phosphoric acid or phosphonic acid, or optionally ethoxylated alkyl or alkylene carboxylic acids or sulphonic acids. It will be appreciated that where more than one amine functionality is present in the compound of formula (I) or the

relevant acid has more than one functional group, the option for different salt stoichiometries and mixed salts exists and all such variations are included herein

As used herein, the term lower alkyl means a linear or branched chain primary or secondary alkyl group containing from 1 to 6 carbon atoms. Preferred lower alkyl groups contain from 1 to 4 carbon atoms, and methyl, ethyl and propyl or isopropyl groups are especially preferred.

$R^1$ ,  $R^2$ ,  $R^5$ ,  $R^6$ ,  $R^{10}$ ,  $R^{11}$ ,  $R^{14}$  and  $R^{15}$  are preferably methyl or hydrogen. Hydrogen is especially preferred.

Thus it is preferred that in a compound of formula (I).-

X is -OH or a lower alkoxy group containing from 1 to 4 carbon atoms or

X is  $R^5R^6N$ - wherein  $R^5$  and  $R^6$  are hydrogen or a lower alkyl group containing from 1 to 4 carbon atoms or

X is a group of formula IC'

$CH_2 - O -$

$CR^{18} - (R^{21})_d - O - (R^8O)_b - R^9 - NH_2$   
 $C H_2 - O - (R^{12}O)_c - R^{13} - NH_2$

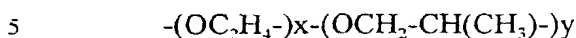
wherein  $R^8O$  and  $R^{12}O$  are independently ethoxy, or propoxy, in particular isopropoxy, or a random or block mixture thereof,  $R^9$  and  $R^{13}$  are independently a linear or branched chain alkylene bridging group containing 2 or 3 carbon atoms and  $R^{21}$  is a linear or branched chain alkylene bridging group containing from 1 to 3 carbon atoms,  $R^{18}$  is hydrogen or lower alkyl containing from 1 to 4 carbon atoms and d is 0 or 1,

$R^1$  and  $R^2$  are independently hydrogen or a lower alkyl group containing from 1 to 4 carbon atoms,  $R^3O$  is ethoxy, or propoxy, in particular isopropoxy, or a random or block mixture thereof,  $R^4$  is a linear or branched chain alkylene bridging group containing 2 or 3 carbon atoms and a is from 1 to 400 or if X is of formula IC', the sum of a, b and c is from 3 to 400.

The compounds for use in the composition of the present invention are alkoxyated monoamines (X is of Formula IA), diamines (X is of Formula IB) or triamines (X is of Formula IC). Alkoxylation typically takes place to introduce ethoxy groups or propoxy groups, although butoxy groups may sometimes also be used. The propoxy group is preferably an isopropoxy group,  $-OCH_2-CH(CH_3)-$ . Mixed alkoxylation may also take place to introduce for example both ethoxy and propoxy or butoxy groups which may be present



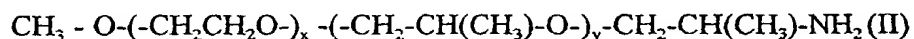
as a mixture in either random or block arrangement. Thus each of  $-(OR^3)_a-$ ,  $-(OR^8)_b-$  and  $-(OR^{12})_c-$  in the above formulae independently represent alkoxy groups, for example ethoxy and propoxy groups or a mixture thereof. Thus the definition of group  $-(OR^3)_a$  for example includes a group



wherein a is represented by the sum of x and y. Other combinations of for example ethoxy propoxy and butyloxy groups in any desired order are similarly included in the definition of  $-(OR^3)_a-$ ,  $-(OR^8)_b-$  and  $-(OR^{12})_c-$  respectively

The process of alkoxylation may produce a mixture of products having different  
10 degrees of alkoxylation. Thus the values of a, b, c and a' represent an average degree of alkoxylation over the product as a whole. Preferred values of a, b, and c, respectively are from 1 to 100, for example from 1 to 50 and especially from 1 to 30. Thus when X in formula (I) is of formula IC, the sum of  $a + b + c$  is preferably from 3 to 90. In the group  $X'-(R^3O)_a-R^4-$  if present, a' is preferably from 0 to 50 and especially from 0 to 30.

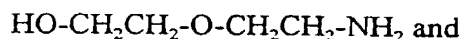
15 An especially preferred alkoxyated monoamine (wherein X is of formula IA) for use in the present invention has the formula II wherein X is methoxy,  $-(R^3O)_a$  represents a mixture of ethoxy and propoxy groups  $R^4$  represents a propylene bridging group:-



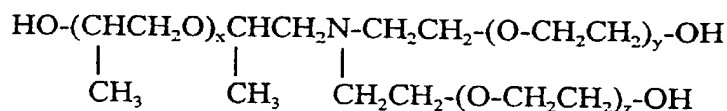
The average degree of ethoxylation (x) may vary from 0 to about 45 or more preferably  
20 from 0 to about 40, for example from 0 to about 20 and the average degree of propoxylation (y) may vary from 0 to about 90 and more preferably from about 1 to about 35, for example from about 2 to about 30, provided that x and y are not both 0 at the same time. Products are commercially available wherein x is about 1 and y is about 9; x is about 19 and y is about 3; x is about 6 and y is about 29 and x is about 32 and y is about 10. As specific  
25 examples of commercially available products there may be mentioned JEFFAMINE M600 (JEFFAMINE is a trade mark of Huntsman Limited) having an approximate molecular weight of 600 and a propoxy to ethoxy ratio of 9 to 1, JEFFAMINE M1000 having an approximate molecular weight of 1000 and a propoxy to ethoxy ratio of 3 to 19, JEFFAMINE M2005 having an approximate molecular weight of 2000 and a propoxy to  
30 ethoxy ratio of 29 to 6 and JEFFAMINE M2070 having an approximate molecular weight of 2000 and a propoxy to ethoxy ratio of 10 to 32.

Also included in the scope of the present invention is

(i) diethylene glycolamine wherein in Formula I, X is OH, (R<sup>3</sup>O) is ethoxy, a is 1 and R<sup>4</sup> is an ethylene bridging group and R<sup>1</sup> and R<sup>2</sup> are hydrogen:-

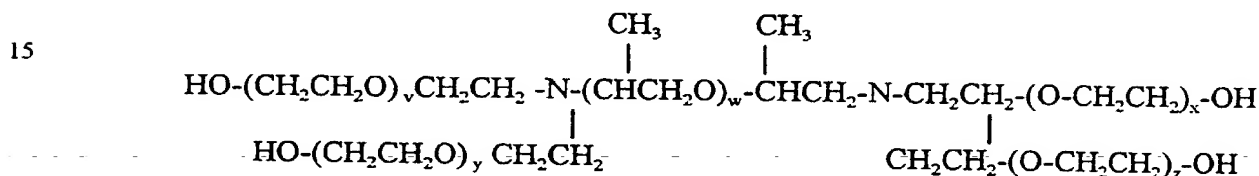


5 (ii) a compound of formula



10 wherein in Formula I, X is -OH, R<sup>3</sup> and R<sup>4</sup> are isopropyl, R<sup>1</sup> and R<sup>2</sup> are X'-(R<sup>3</sup>O)<sub>a</sub>-R<sup>4</sup>-, X' is -OH, R<sup>3</sup> and R<sup>4</sup> are ethyl and x, y and z respectively take any of the values defined for a or a' as the case may be and

(iii) a compound of formula

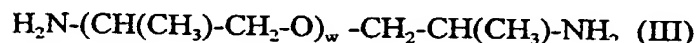


15 wherein in Formula I, X is R<sup>5</sup>R<sup>6</sup>N-, R<sup>3</sup> and R<sup>4</sup> are isopropyl, R<sup>1</sup>, R<sup>2</sup>, R<sup>5</sup> and R<sup>6</sup> are X'-(R<sup>3</sup>O)<sub>a</sub>-R<sup>4</sup>-, X' is -OH, R<sup>3</sup> and R<sup>4</sup> are ethyl and v, w, x, y and z respectively take any of the values defined for a or a' as the case may be.

Also included in the scope of the present invention is

tris 2-(2-methoxyethoxy)ethylamine wherein in formula I, X is OCH<sub>3</sub>, (R<sup>3</sup>O) is ethoxy, a is 1 and R<sup>4</sup> is an ethylene bridging group and wherein R<sup>1</sup> and R<sup>2</sup> are each a group -R<sup>4</sup>-(OR<sup>3</sup>)<sub>a</sub>-X' wherein (R<sup>3</sup>O) is ethoxy, a' is 1, R<sup>4</sup> is an ethylene bridging group and X' is OCH<sub>3</sub>.

25 An especially preferred propoxylated diamine (wherein X is of formula IB) for use in the present invention has the formula III wherein X is a group H<sub>2</sub>N-, -(R<sup>3</sup>O-)<sub>a</sub> represents propoxy groups R<sup>4</sup> represents a propoxy bridging group:-



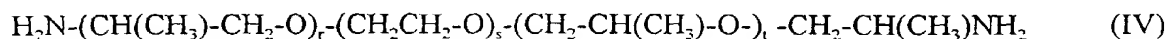
30 wherein w is an average of from about 1 to about 80. Products are commercially available wherein w is an average of about 2.6, 5.6, 33.1 and 68. As Examples of commercially available products of formula III, there may be mentioned JEFFAMINE D230 having an approximate molecular weight of 230 and a value of w of about 2.6, JEFFAMINE D400 having an approximate molecular weight of 400 and a value of w of about 5.6,

35 JEFFAMINE D2000 having an approximate molecular weight of 2000 and a value of w of

about 33.1, and JEFFAMINE D4000 having an approximate molecular weight of 4000 and a value of  $w$  of about 68. An especially preferred value for  $w$  is from about 2 to about 35, for example from about 2 to about 30

An alternative diamine (wherein  $X$  is of formula IB) having a mixture of

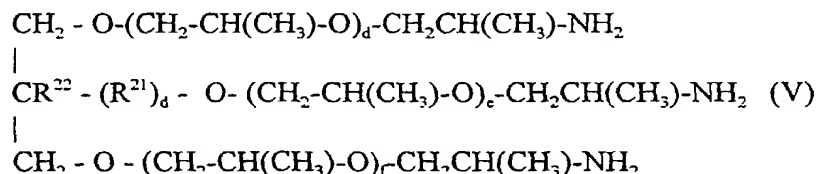
ethoxylation and propoxylation for use in the present invention has the formula IV wherein  $X$  is a group  $H_2N-$ ,  $-(R^3O)-$ , represents a mixture of ethoxy and propoxy groups  $R^1$  and  $R^2$  are hydrogen and  $R^4$  represents a propylene bridging group:-



wherein the sum of  $r + t$  (total propoxy content) is an average of from 1 to 20 propoxy

groups, for example from about 1 to 10 propoxy units and  $s$  is an average of from 2 to 50 for example from 5 to 50 ethoxy units. Commercial products are available wherein the sum of  $r + t$  is about 3.6 and  $s$  represents an average of about 9, or 15.5 respectively or wherein  $r + t$  is about 6 and  $s$  represents an average of about 38.7. As examples of commercially available products of formula (IV) there may be mentioned JEFFAMINE ED 600 having an approximate molecular weight of 600 and an propoxy to ethoxy ratio of 3.6 to 9, JEFFAMINE ED 900 having an approximate molecular weight of 900 and an propoxy to ethoxy ratio of 3.6 to 15.5 and JEFFAMINE ED 2003 having an approximate molecular weight of 2000 and an propoxy to ethoxy ratio of 6.0 to 38.7. It is especially preferred that the value of  $(r + t)$  is from about 2 to about 15 and  $s$  is from about 3 to about 20.

An especially preferred propoxylated triamine (wherein  $X$  is formula IC) has the formula (V)



wherein the sum of  $d + e + f$  is an average of from about 5 to 90 and  $R^{22}$  is hydrogen or lower alkyl containing 1 to 4 carbon atoms such as methyl or ethyl,  $R^{21}$  is a linear or branched chain alkylene bridging group containing from 1 to 3 carbon atoms and  $d$  is 0 or 1. Products are available commercially wherein the sum of  $d + e + f$  is about 5.6, about 50 and about 85 respectively. Thus as examples of commercially available products of formula (V) there may be mentioned JEFAMINE T403 having an approximate molecular weight of 440

and a value of  $d + e + f$  (total propoxy content) of 5.6, JEFAMINE T3000 having an approximate molecular weight of 3000 and a value of  $d + e + f$  (total propoxy content) of 50 and JEFAMINE T5000 having an approximate molecular weight of 5000 and a value of  $d + e + f$  (total propoxy content) of 85.

5 We have found that the activity enhancing effect of the adjuvants in the composition of the present invention is particularly and surprisingly marked when the agrochemical active ingredient is water-soluble. The agrochemical for use in the composition of the present invention is preferably a water-soluble electrolyte such as an agrochemical salt and in particular a herbicidally active agrochemical salt for example a salt of glyphosate,  
10 paraquat or fomesafen. Typical of the commonly available salts of glyphosate are the isopropylamine, trimethylsulphonium, sodium, potassium, ammonium, and ethanolamine salts. Paraquat is generally sold in the form of paraquat dichloride. Fomesafen is generally formulated as the sodium salt.

The proportion of adjuvant of formula (I) to agrochemical, for example glyphosate  
15 (expressed as the acid) may vary within wide ranges depending on the desired level of activation. Typically the proportion of adjuvant of formula (I) to agrochemical will be from 1:40 to 3:1 for example from 1:20 to 3:1 by weight and especially from 1:10 to 1:1 by weight.

The compositions of the present invention may be used on their own but are  
20 preferably used in the form of a composition containing a carrier comprising a solid or liquid diluent.

Compositions of the invention include both dilute compositions, which are ready for immediate use, and concentrated compositions, which require to be diluted before use, usually with water. The concentration of the composition will depend on the nature of the  
25 active ingredient. Typically, and especially for example if the active ingredient is a herbicide, the compositions contain from 0.01% to 90% by weight of the active ingredient. Dilute compositions ready for use preferably contain from 0.01 to 2% of active ingredient, while concentrated compositions may contain from 20 to 90% of active ingredient, although from 20 to 70% is usually preferred.

30 The solid compositions may be in the form of granules, or dusting powders wherein the active ingredient and adjuvant are mixed with a finely divided solid diluent, e.g. kaolin, bentonite, kieselguhr, dolomite, calcium carbonate, talc, powdered magnesia, Fuller's earth

5

10

15

30

D400 have a surface tension measured by this method of greater than  $50 \text{ mNm}^{-1}$  as compared with AGRIMUL PG2067 alkylpolyglycoside which has a surface tension measured by this method of  $28 \text{ mNm}^{-1}$ . Adjuvants having a surface tension of less than  $50 \text{ mNm}^{-1}$  also give excellent results and JEFFAMINE D2000 for example having a surface tension measured by this method of  $42 \text{ mNm}^{-1}$  may even provide advantages on certain weed species as discussed below

Compositions of the present invention generally exhibit excellent low-foaming properties when the composition is incorporated in the spray tank and during transportation and spraying.

When the active ingredient is a herbicide and in particular a water-soluble herbicide, adjuvants of formula (I) generally provide excellent and effective enhancement of activity in respect of most important weed species encountered in the field. Enhancement may however be less marked on certain "difficult" weed species. We have found that the use of a mixture of an adjuvant of formula (I) with a surfactant and in particular with an alkylpolyglycoside surfactant may provide excellent enhancement of activity both against normal weed species and against "difficult" species. Indeed in certain circumstances synergy may be observed and greater enhancement of control of "difficult" species may be obtained than when using either the adjuvant of formula (I) or the alkylpolyglycoside alone. The ratio of the adjuvant of formula (I) to the alkylglycoside is preferably from 1 : 40 to 4 : 1, for example 1 : 20 to 4 : 1, especially from 1 : 6 to 2 : 1 and most preferably about 1 to 1.

When the active ingredient is a herbicide, the invention provides, in a further aspect, a process for severely damaging or killing unwanted plants, which process comprises applying to the plants, or to the growth medium of the plants, a herbicidally effective amount of a composition as hereinbefore defined.

The invention is illustrated by the following Examples in which all parts and percentages are by weight unless otherwise stated.

#### Examples 1 to 10

Potassium glyphosate was applied at 500g glyphosate acid equivalent/ha to *Abutilon theophrasti* (ABUTH) plants grown in the glass-house. All treatments were made up in deionised water and applied using a tracksprayer with a 11002 nozzle at a spray application volume of 200l/ha. All treatments were replicated 4 times. After spraying the plants were

laid out in a glass-house and maintained at a temperature of 24°C by day and 19°C by night. The JEFFAMINE adjuvants were used in a proportion 0.2% w/v. A visual assessment of % control, where 0=unaffected and 100=complete kill, was carried out 16 days after treatment.

Example No	Treatment	% control
Comparison	No adjuvant	37
4	JEFFAMINE D400	93
2	JEFFAMINE D2000	76
3	JEFFAMINE T3000	76
4	JEFFAMINE ED600	89
5	JEFFAMINE ED900	85
6	JEFFAMINE ED2003	85
7	JEFFAMINE M600	85
8	JEFFAMINE M1000	81
9	JEFFAMINE M2005	70
10	JEFFAMINE M2070	74

5

#### EXAMPLES 11 TO 14

Potassium glyphosate was applied to *Abutilon theophrasti* (ABUTH), *Brassica napus* (BRSNS) and *Veronica persica* (VERPE) drilled as rows in the field, at a spray application volume of 200l/ha. The indicated adjuvant was included in the formulation at a total  
 10 adjuvant concentration of 0.2% w/v. Application rates were 150, 300 and 450 g glyphosate acid/ha and each treatment was replicated 3 times. Data (mean of the three replicates and across all rates) is presented for a visual assessment of % control carried out at 26 days after application (DAA), where 0 = unaffected and 100% = complete kill.

AL2042 is an alkylpolyglycoside surfactant based on the same alkylpolyglycoside as  
 15 AGRIMUL PG 2067. Both JEFFAMINE ED600 and JEFFAMINE D400 showed excellent adjuvant activity on representative species ABUTH and VERPE. On the "difficult" species BRSNS, the combination of the JEFFAMINE adjuvant and the alkylpolyglycoside showed greater activity than either the JEFFAMINE adjuvant or the alkylpolyglycoside on its own.

Example No	Total adjuvant = 0.2%	ABUTH	BRSNS	VERPE
11	JEFFAMINE ED600	70.0	64.7	48.8
12	JEFFAMINE D400	64.9	62.2	47.2
13	JEFFAMINE ED600 and Agrimul PG2067 (0.1% + 0.1%)	57.8	78.9	44.4
14	JEFFAMINE D400 and Agrimul PG2067 (0.1% + 0.1%)	57.7	77.1	44.7
Comparison	AL2042	45.8	70.3	39.7

EXAMPLE 15

This Example illustrates the use of a salt of ethoxy (5 moles of EO) isotridecyl phosphate ester in the acid form ( CRODAFOS T5A) with JEFFAMINE ED600

5 CRODAFOS T5A is a mixture of mono and di esters. CRODAFOS is a tradename of Croda

Potassium glyphosate, in combination with the adjuvants specified below, was applied to *Ipomoea hederacea* (IPOHE) at 300 g glyphosate acid equivalent/ha. All treatments were made up in deionised water and applied using a tracksprayer with a 11002 nozzle at a spray application volume of 200l/ha. All treatments were replicated 4 times.

10 After spraying the plants were laid out in a glass-house and maintained at a temperature of 24°C by day and 19°C by night. A visual assessment of % control was carried out 16 days after treatment

Treatment	IPOHE - % control
No adjuvant	64
AL2042	71
CRODAFOS T5A, JEFFAMINE ED600 salt	86
CRODAFOS T5A, potassium salt	79

15

The AL2042 was applied at 0.2% w/v and the CRODAFOS T5A salts were applied at 0.2% w/v phosphate ester acid equivalent. The Crodafos T5A potassium salt was prepared by neutralising the phosphate ester in its acid form with potassium hydroxide to pH6. The CRODAFOS T5A JEFFAMINE ED600 salt was prepared by neutralising the phosphate ester in its acid form with JEFFAMINE ED600 to pH6.

20



EXAMPLE 16

This Example illustrates the use of salts of glyphosate acid and the adjuvants of Formula (I)

- 5           Glyphosate trimesium and the glyphosate salts of the indicated adjuvants of formula (I) were applied to *Sorghum halepense* (SORHA) at 500, 1000, 2000 and 4000 g glyphosate acid equivalent/ha. All treatments were made up in deionised water and applied using a tracksprayer with a 11002 nozzle at a spray application volume of 200l/ha. All treatments were replicated 3 times. After spraying the plants were laid out in a glass-house and
- 10       maintained at a temperature of 24°C by day and 19°C by night. A visual assessment of % control was carried out 22 days after treatment and calculated doses for 90% control (ED90) were derived. AL2042 alkylpolyglycoside was used at 0.25% w/v as additional surfactant with all treatments. It will be appreciated that a low ED90 value indicates high activity.

Glyphosate salt	Adjuvant	SORHA - ED90 gae/ha
Glyphosate trimesium	AL2042	1410
Glyphosate JEFFAMINE D400	AL2042	821
Glyphosate JEFFAMINE M600	AL2042	493

15

EXAMPLE 17

- Paraquat dichloride, in combination with the adjuvants specified below, was applied to Abutilon theophrasti (ABUTH) at four rates of paraquat (15, 45, 135 and 270 g/ha paraquat ion). All treatments were made up in deionised water and applied using a
- 20       tracksprayer with a 11002 nozzle at a spray application volume of 200l/ha. All treatments were replicated 3 times. After spraying the plants were laid out in a glass-house and maintained at a temperature of 22°C by day and 18°C by night. A visual assessment of % control was carried out 18 days after treatment and calculated doses for 90% control (ED90 - g paraquat ion per litre) were calculated. The adjuvants were applied at 0.1% w/v.
- 25       ED90 g/ha 18DAT

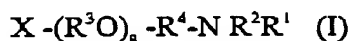
Treatment (0.1% adjuvant)	ABUTH	SIDSP
Control - No adjuvant	325	(>270)
JEFFAMINE ED600	246	182

- 1 -

Claims

1. An agrochemical composition comprising an agrochemical active ingredient and an adjuvant of formula (I) and salts thereof

5



wherein  $R^1$  and  $R^2$  are independently hydrogen or a lower alkyl group containing from 1 to 4 carbon atoms,

10

$R^3O$  is an ethoxy, propoxy or butoxy group or a random or block mixture thereof,

$R^4$  is a linear or branched chain alkylene bridging group containing from 1 to 4 carbon atoms, X is

(IA) -OH or a lower alkoxy group containing from 1 to 4 carbon atoms

or X is

15

(IB) a group  $R^5R^6N-$

wherein  $R^5$  and  $R^6$  are independently hydrogen or a lower alkyl group containing from 1 to 4 carbon atoms

or X is

(IC) a group

20

$CH_2-O-$

$|$   
 $CR^{18}-(R^{21})_d-O-(R^8O)_b-R^9-NH_2$

25

$|$   
 $CH_2-O-(R^{12}O)_c-R^{13}-NH_2$

wherein  $R^8O$  and  $R^{12}O$  are independently ethoxy, or propoxy or a random or block mixture thereof,  $R^9$  and  $R^{13}$  are independently a linear or branched chain alkylene bridging group containing 2 or 3 carbon atoms,  $R^{21}$  is a linear or branched chain alkylene bridging group containing from 1 to 3 carbon atoms,  $R^{18}$  is hydrogen or lower alkyl containing from 1 to 4 carbon atoms, d is 0 or 1,

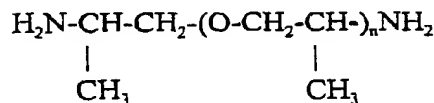
30

and wherein a, is from 1 to 400 or if X is of formula IC, the sum of a, b and c is from 3 to 400,

GEÄNDERTES BLATT  
IPEA/EP

- 2 -

provided that when X is of formula (1B), the adjuvant of formula (1) does not have the structure



wherein n is 2 or 3.

2. A composition according to claim 1 wherein a is from 1 to 50 or if X is of formula IC, the sum of a, b and c is from 3 to 90.

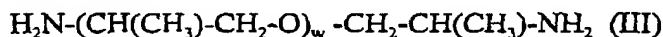
3. A composition according to claim 1 wherein the adjuvant of formula (I) is an alkoxyated monoamine, having the formula II



wherein the average degree of ethoxylation (x) is from 0 to about 45 and the average degree of propoxylation (y) is from 0 to about 90 provided that x and y are not both 0 at the same time.

4. A composition according to claim 3 wherein the value of x is from 0 to about 20 and of y is from about 2 to about 30.

5. A composition according to claim 1 wherein the compound of formula (I) is a diamine having a formula (II)



wherein w is an average of from about 1 to about 80.

6. A composition according to claim 5 wherein w is an average of from about 2 to about 35

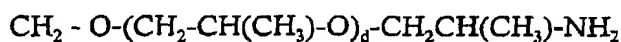
7. A composition according to claim 1 wherein the compound of formula (I) is a diamine having a formula (IV)



wherein the sum of r + t is an average of from 1 to 20 propoxy groups and s is an average of from 2 to 50 ethoxy units.

8. A composition according to claim 7 wherein the sum of r + t is from about 2 to about 15 and s is from about 3 to about 20.

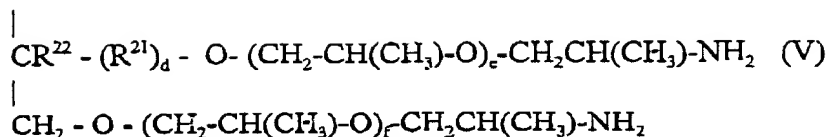
9. A composition according to claim 1 wherein the compound of formula (I) is a propoxylated triamine having the formula (V)



GEÄNDERTES BLATT

IPEA/EP

- 3 -



- 5 wherein the sum of  $d + e + f$  is an average of from about 5 to 90,  $\text{R}^{22}$  is hydrogen or lower alkyl containing 1 to 4 carbon atoms,  $\text{R}^{21}$  is a linear or branched chain alkylene bridging group containing 1 to 3 carbon atoms and  $d$  is 0 or 1.
10. A composition according to any of the preceding claims wherein the proportion of adjuvant of formula (I) to the agrochemical is from 1:20 to 3:1 by weight.
- 10 11. A composition according to any of the preceding claims wherein the adjuvant of formula (I) in claim 1 is used in combination with an alkylpolyglycoside surfactant.
12. A composition according to claim 11 wherein the ratio of the adjuvant of formula (I) to the alkylpolyglycoside surfactant is from 1 : 40 to 4 : 1.
13. A composition according to any of the preceding claims wherein the agrochemical active ingredient is a salt of glyphosate, a salt of fomesafen or a paraquat salt.
- 15 14. A composition according to any of claims 1 to 12 wherein the adjuvant of formula (I) in claim 1 is used in the form of a salt with glyphosate or a salt with an acidic surfactant.
15. A process of severely damaging or killing unwanted plants which process comprises applying to the plants or to the growth medium of the plants, a herbicidally effective amount of a composition as claimed in any of claims 1 to 14.
- 20 16. A composition according to any of claims 1 to 14 which is an aqueous composition containing from 0.01% to 90% by weight of the active ingredient.

GEÄNDERTES BLATT  
IPEA/EP

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION  
International Bureau

## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<b>(51) International Patent Classification <sup>7</sup> :</b> <b>A01N 25/30, 57/20</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 00/59302</b> <b>(43) International Publication Date:</b> 12 October 2000 (12.10.00)
<b>(21) International Application Number:</b> PCT/GB00/01062 <b>(22) International Filing Date:</b> 21 March 2000 (21.03.00) <b>(30) Priority Data:</b> 9907669.7 1 April 1999 (01.04.99) GB <b>(71) Applicant (for all designated States except US):</b> ZENECA LIMITED [GB/GB]; 15 Stanhope Gate, London W1Y 6LN (GB). <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> CUTLER, Julia, Lynne [GB/GB]; Jealotts Hill International Research Centre, Bracknell, Berkshire RG42 6ET (GB). BEAN, Michael, John [GB/GB]; Jealotts Hill International Research Centre, Bracknell, Berkshire RG42 6ET (GB). SEVILLE, Antony, George [GB/GB]; Jealotts Hill International Research Centre, Bracknell, Berkshire RG42 6ET (GB). <b>(74) Agents:</b> RICKS, Michael, James et al.; Zeneca Agrochemicals, Intellectual Property Dept., P.O. Box 3538, Jealott's Hill Research Station, Bracknell RG42 6YA (GB).		<b>(81) Designated States:</b> AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> With international search report.  <div style="border: 1px solid black; padding: 5px; width: fit-content;">           IPD AGROCHEMICALS            ATTORNEYS-IN-FACT MUR            29 OCT 2000            SCANNED ALL p1 ✓            PAGES         </div>
<b>(54) Title:</b> AGROCHEMICAL COMPOSITION  <div style="text-align: center;"> <math display="block">\begin{array}{c} \text{CR}^{16}\text{R}^{17} - \text{O}- \\   \\ \text{CR}^{18} - (\text{R}^{21})_d - \text{O}-(\text{R}^8\text{O})_b - \text{R}^9 - \text{NR}^{10}\text{R}^{11} \\   \\ \text{CR}^{19}\text{R}^{20} - \text{O} - (\text{R}^{12}\text{O})_c - \text{R}^{13} - \text{NR}^{14}\text{R}^{15} \end{array} \quad (1)</math> </div> <b>(57) Abstract</b> <p>An aqueous agrochemical composition comprises an agrochemical active ingredient such as glyphosate, paraquat or fomesafen and an adjuvant of formula (I): <math>\text{X}-(\text{R}^3\text{O})_a-\text{R}^4-\text{N R}^2\text{R}^1</math> and salts thereof, wherein <math>\text{R}^1</math> and <math>\text{R}^2</math> are independently hydrogen or a lower alkyl group or a group <math>\text{X}-(\text{R}^3\text{O})_a-\text{R}^4-</math> wherein <math>\text{X}</math> is <math>-\text{OH}</math> or a lower alkoxy group; <math>\text{R}^3\text{O}</math> is an ethoxy, propoxy or butoxy group or a random or block mixture thereof; <math>\text{R}^4</math> is a linear or branched chain alkylene bridging group containing from 1 to 4 carbon atoms; <math>\text{X}</math> is (IA) <math>-\text{OH}</math> or a lower alkoxy group; or (IB) a group <math>\text{R}^5\text{R}^6\text{N}-</math> or <math>\text{R}^5\text{R}^6\text{N}-\text{R}^7-</math>; or (IC) a group (1) wherein <math>a</math>, is from 1 to 400 or if <math>\text{X}</math> is of formula IC, the sum of <math>a</math>, <math>b</math> and <math>c</math> is from 3 to 400 and <math>d</math> is 0 or 1.</p>		

*FOR THE PURPOSES OF INFORMATION ONLY*

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LI	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

Docket No.  
PPD 50391/UST

Scott M Alter, Reg No 32,879; Hollie L Baker, Reg No 31,321; Barbara A Barakat, Reg No 32,190; Steven D Barrett, Reg No 40,903; Michael J Bevilacqua, Reg No 31,091; Sally Bryne, Reg No 40,545; David L Cavanaugh, Reg No 36,476; David J Cerveny, Reg No 44,600; Nancy Chiu *Phd*, Reg No 43,545; Michael A Diener, Reg No 37,122; Peter M Dichiaro, Reg No 38,005; Gregory S Discher, Reg No 42,488; Irah H Donner, Reg No 35,120; Richard A Goldenberg, Reg No 38,895; Edward D Grieff, Reg No 38,898; Joseph F Haag, Reg No 42,612; Wendy A Haller, Reg No 35,177; Wayne M Kennard, Reg No 30,271; Wayne A Keown *Phd*, Reg No 33,923; Ann-Louise Kerner *Phd*, Reg No 33,523; Anthony Kahng, Reg No 42,704; Janice M Klunder *Phd*, Reg No 41,121; James B Lampert, Reg No 24,546; Ayla A Lari, Reg No 43,739; Nels Lippert, Reg No 25,888; Maria L Maebius, Reg No 42,967; Dominic Massa, Reg No 44,905; Robert McIssac *Phd*, Reg No 46,918; Cynthia K Nicholson, Reg No 36,880; Keum J Park, Reg No 42,059; Tamara Pertmer *Phd*, Reg No 47,856; Jason A Reyes, Reg No 41,513; Gretchen A Rice *Phd*, Reg No 37,429; MaryRose Scozzafava, Reg No 36,268; Donald R Steinberg, Reg No 37,241; Victor F Souto, Reg No 33,458; Colleen Superko, Reg No 39,850; C Hall Swaim, Reg No 22,838; Leonid Thenor, Reg No 39,397; Michael J Twomey, Reg No 38,349; Rajesh Vallabh, Reg No 35,761; Gary A Walpert, Reg No 26,098; M Lisa Wilson *Phd*, Reg No 34,045; Henry N Wixon, Reg No 32,073; Luke Yeh, Reg No 43,296.

Address all telephone calls to Hale and Dorr LLP, at telephone number **(202) 942-8400**.

Address all correspondence to:

Hale and Dorr LLP  
Counsellors At Law  
The Willard Office Building  
1455 Pennsylvania Avenue  
Washington, DC 20004-1008

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true and further that these statements are made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

200 Full name of sole or first inventor (given name, family name) **RAMSAY, Julia Lynne (nee CUTLER)**

Inventor's signature Julia Lynne Ramsay Date 28th October 2001

Residence United Kingdom British Subject

Post Office Address Syngenta Limited, Jealott's Hill International Research Centre, Bracknell, Berkshire, RG42 6ET, United Kingdom

G B X

200 Full name of sole or first inventor (given name, family name) **SEVILLE, Antony George**

Inventor's signature [Signature] Date 24th October 2001

Residence United Kingdom British Subject

Post Office Address Syngenta Limited, Jealott's Hill International Research Centre, Bracknell, Berkshire, RG42 6ET, United Kingdom

G B X

Docket No.  
PPD 50391/UST

## DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter, which is claimed and for which a patent is sought on the invention entitled:

### AGROCHEMICAL COMPOSITION

the specification of which

\_\_\_\_\_ is attached hereto  
☒ was filed on **01 October 2001** as United States or  
PCT International Application Number **09/937,762** and was amended on \_\_\_\_\_ (if  
applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)			Priority Claimed	
Number	Country	Filing Date	Yes	No
9907669.7	United Kingdom	01 April 1999	X	

I hereby claim the benefit under Title 35, United States Code §119(e) of any United States provisional application(s) listed below.

Application Number	Filing Date

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or PCT International Application(s) designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application.

Application Number	Filing Date	Status
PCT/GB00/01062	21 March 2000	

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith:



Docket No.  
PPD 50391/UST

380 Full name of sole or first inventor (given name, family name) **BEAN, Michael John**

Inventor's signature Michael John Bean Date 9<sup>th</sup> November 2001

Residence United States British Subject

Post Office Address Syngenta Limited, 410 Swing Road, Greensboro, NC 27409, USA

NC